

The catalyst suspension may be applied to the membrane according to the invention by conventional processes. Various methods of applying the suspension are known, which depend on the viscosity of the suspension, which may also be in paste form.

Processes for the coating of films, fabrics, textiles and/or papers, in particular spraying processes and printing processes, such as for example stencil and screen printing processes, inkjet processes, roller application, in particular screen rollers, slot die application and doctoring. The respective process and the viscosity of the catalyst suspension depend on the hardness of the membrane.

The viscosity may be influenced by the solids content, in particular the proportion of catalytically active particles, and the proportion of additives. The viscosity to be adjusted is dependent on the method of application of the catalyst suspension, optimum values and the determination thereof being familiar to the person skilled in the art.

The bond between catalyst and membrane may be improved by heating and/or pressing, depending on the hardness of the membrane.

According to a particular aspect of the present invention, the catalyst layer is applied by a powder process. A powdered catalyst that may contain additional additives, examples of which have been given hereinbefore, is used for this purpose.

The powdered catalyst may be applied *inter alia* by spraying processes and screening processes. With spraying process, the powder mixture is sprayed onto the membrane using a die, for example a slot die. The membrane provided with a catalyst layer is then generally heated to improve the joint between catalyst and membrane. Heating may be carried out, for example, over a hot roller. Methods of this type and devices for applying the powder are described *inter alia* in DE 195 09 748, DE 195 09 749 and DE 197 57 492.

During screening processes, the powdered catalyst is applied to the membrane using a vibrating screen. A device for applying a catalyst powder to a membrane is described in WO 00/26982. After application of the powdered catalyst, the bonding of catalyst and membrane may be improved by heating. The membrane provided with at least one catalyst layer may be heated to a temperature in the range of 50 to 200°C, in particular 100 to 180°C.

In addition, the catalyst layer may be applied by a process in which a catalyst-containing coating is applied to a support and the catalyst-containing coating located